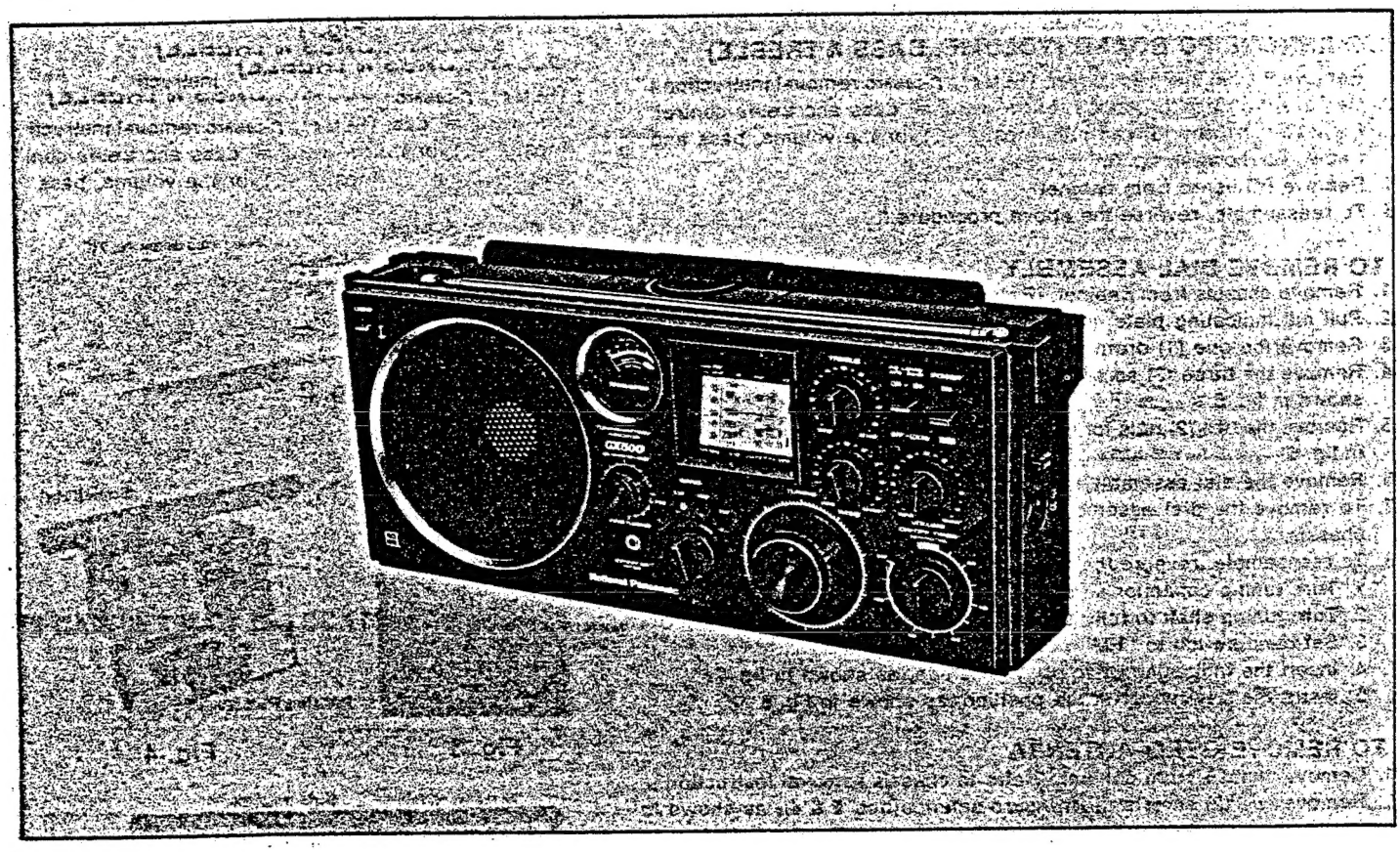
Service Manual

Radio

RF-1130LB

FM-AM 4 BAND
PORTABLE RADIO



■ SPECIFICATIONS

Frequency Range:	FM 87.5~108 MHz LW 145~355 kHz (2060~845m) MW 520~1610 kHz (577~186m) SW 5.9~18 MHz (50.8~16.7m)
Intermediate Frequency:	FM 10.7 MHz AM (LW, MW & SW) 455 kHz
Sensitivity:	FM 2μV for 30 dB Quieting LW 100μV/m for 50mW Output MW 30μV/m for 50mW Output SW 3μV/m for 50mW Output
Power Output:	3.3W Maximum
Power Source:	AC 110~125V/220~240V 50-60 Hz , or 6V (Four "C" Size Flashlight Batteries) (National UM-2 or equivalent)
Power Consumption:	7W (AC Only)
Speaker:	12cm(5") PM Dynamic Speaker
Dimensions:	340(Wide) × 144(High) × 83(Deep)mm (13⅜" × 5⅔" × 3⅜")
Weight:	1.92 kg. (4 lb. 3.7 oz.) without batteries
Impedance:	Speaker.....8Ω Earphone Jack.....8Ω FM Antenna Terminal .....75Ω DIN Jack Phono .....1MΩ Recording Out 70kΩ

Specifications are subject to change without notice for further improvement.

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan

■ TO REMOVE CHASSIS

1. Remove the three (3) knobs for the tuning, fine tuning and band.
2. Lift up the gyro-antenna.
3. Remove the battery cover.
4. Remove the five (5) screws (nos. 1~5) for the cabinet back cover, as shown in fig. 1.
5. Remove the cabinet back cover.
6. Pull out sockets from chassis.
7. Remove the seven (7) red screws (nos. 1~7) for the chassis, as shown in fig. 2.
8. Lift up the telescopic antenna.
9. Remove chassis from cabinet.
10. To reassemble, reverse the above procedure.

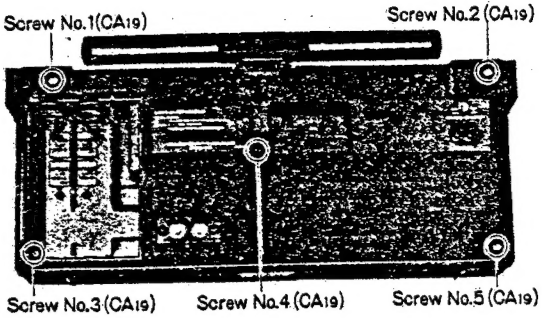


Fig. 1

■ TO REMOVE PC BOARD (VOLUME, BASS & TREBLE)

1. Remove the cabinet back cover. (Refer to chassis removal instruction.)
2. Remove the three (3) knobs for the volume, bass and treble control.
3. Remove the three (3) red nuts (nos. 1~3) for the volume, bass and treble, as shown in fig. 3.
4. Remove PC board from cabinet.
5. To reassemble, reverse the above procedure.

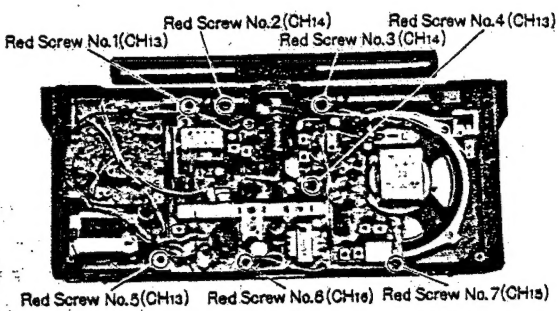


Fig. 2

■ TO REMOVE DIAL ASSEMBLY

1. Remove chassis from cabinet. (Refer to chassis removal instruction.)
2. Pull out indicating plate, as shown in fig. 4.
3. Remove the one (1) drum screw, as shown in fig. 4.
4. Remove the three (3) screws (nos. 1, 3 & 4) for the dial assembly, as shown in fig. 5.
5. Remove the two (2) nuts for the fine tuning and band switch, as shown in fig. 6.
6. Remove the dial assembly from chassis.
7. To remove the dial assembly completely, unsolder lead wires from chassis.
8. To reassemble, reverse the above procedure and note the following.
   1. Turn tuning capacitor shaft to fully counter-clockwise.
   2. Turn tuning shaft to fully counter-clockwise.
   3. Set band switch to "FM" position.
   4. Insert the indicating plate at the position, as shown in fig. 7.
   5. Insert the fine tuning at the position, as shown in fig. 8.

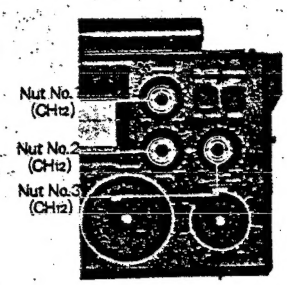


Fig. 3

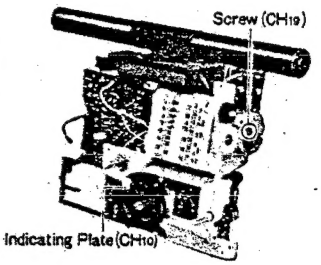


Fig. 4

■ TO REMOVE GYRO-ANTENNA

1. Remove chassis from cabinet. (Refer to chassis removal instruction.)
2. Remove two (2) screws for the gyro-antenna(nos. 2 & 4), as shown in fig. 5.
3. Remove gyro-antenna from chassis.
4. To remove gyro-antenna completely unsolder lead wires from chassis, as shown in fig. 5.
5. To reassemble reverse the above procedure.

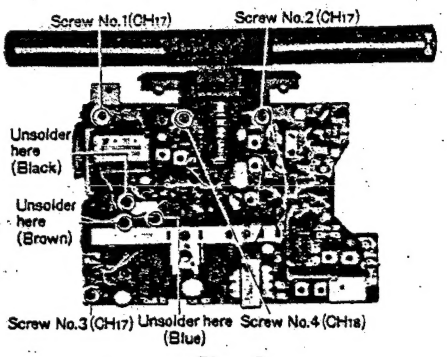


Fig. 5

■ TO REMOVE FERRITE ANTENNA

1. Remove gyro-antenna cover in the direction of arrow, as shown in fig. 9.
2. Unsolder lead wires from ferrite antenna, as shown in fig. 10.
3. To reassemble, reverse the above procedure.

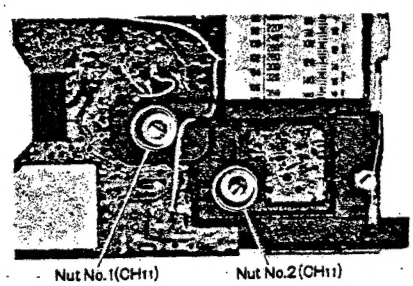


Fig. 6

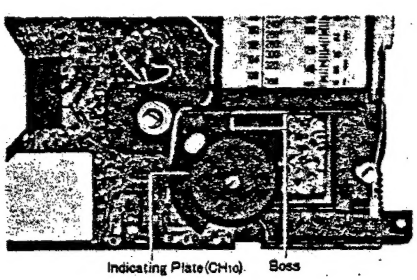


Fig. 7

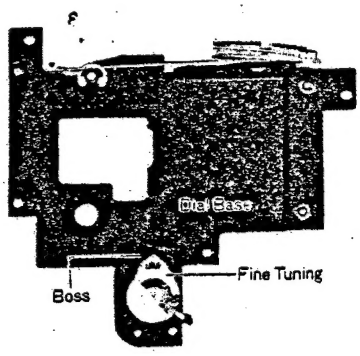


Fig. 8

■ DIAL CORD INSTALLATION GUIDE

1. Remove chassis from cabinet. (Refer to chassis removal instruction.)
2. Dial cord length is 90 cm ($35\frac{7}{16}$").
3. Loosen dial drum screw, as shown in fig. 12.
4. Set each dial drum at the position, as shown in fig.12.
5. Arrows (1~10) indicate correct order and direction of cord installation, as shown in fig. 12.
6. Cement dial cord ends.
7. Turn tuning shaft fully counter-clockwise.
8. Set start point of the dial with the boss, as shown in fig. 11.
9. Tighten the drum screw, as shown in fig. 12.

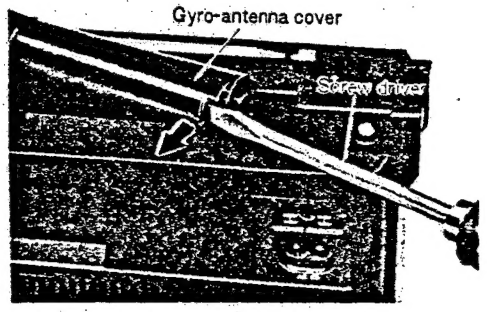


Fig. 9

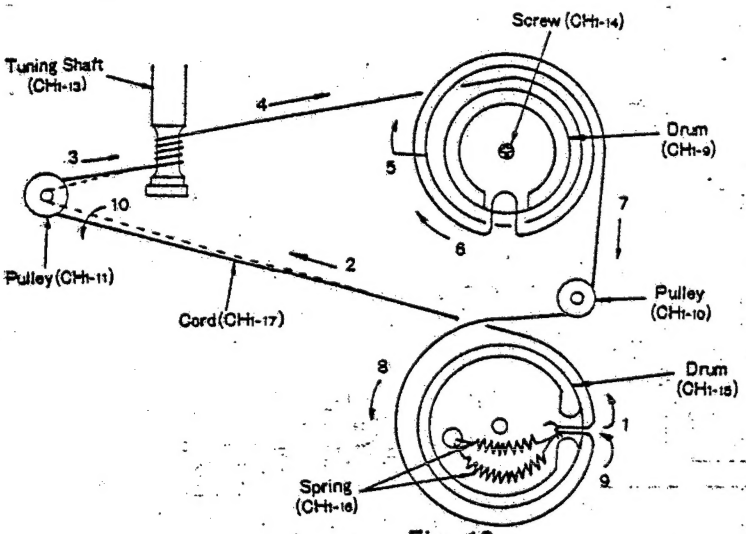


Fig. 12

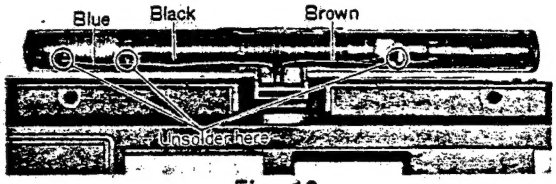


Fig. 10

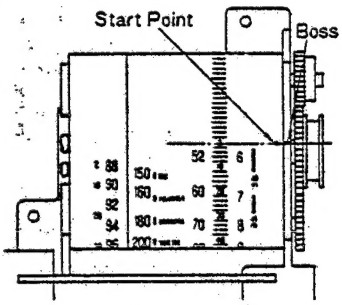


Fig. 11

■ CABINET PARTS LOCATIONS

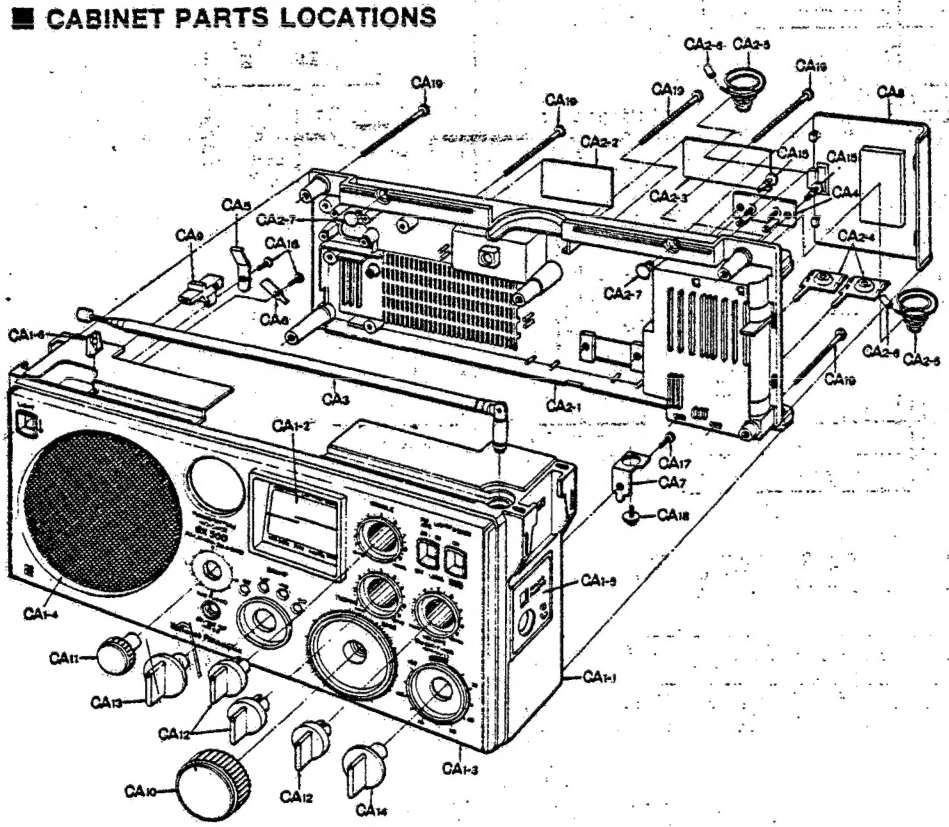


Fig. 13

■ CHASSIS PARTS LOCATIONS

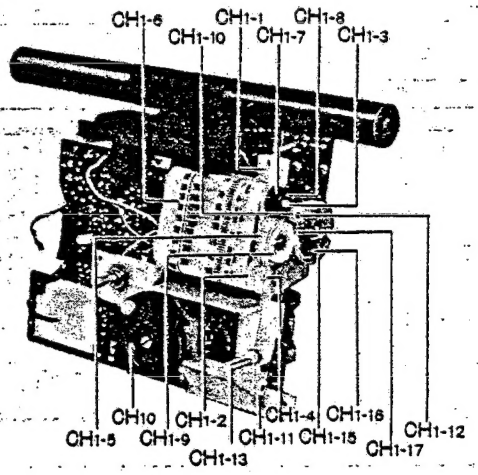


Fig. 14

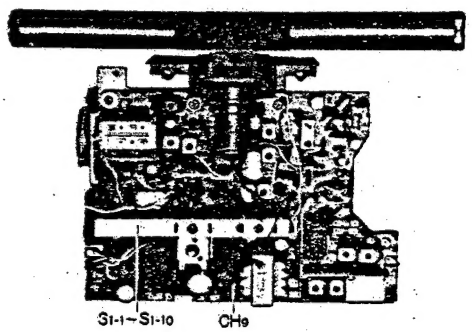
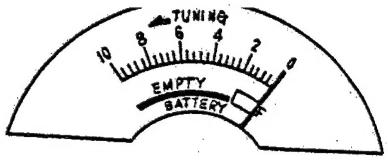


Fig. 15

- Set volume control to minimum.
- Set power source voltage to 6 volts DC.

2. REMARKS
   - Adjust R_{44} so that the pointer of meter stays as shown in figure right.



■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Notes:
1. Set volume control to MAX.
2. Set bass control to MAX.
3. Set treble control to MAX.
4. Set band selector switch to FM, LW, MW or SW.
5. Set power switch to ON.
6. Set FM AFC/LW/MW SENS switch to DX or OFF (FM).
7. Set fine tuning to center.
8. Set power source voltage to 6 volts DC.
9. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING (DISTANCE)	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
	LW ALIGNMENT					
(1)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz.	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T_2 (1st IFT) T_4 (2nd IFT)	Adjust for maximum output.
(2)	〃	145 kHz	145 kHz (Fig. 20)	〃	L_9 (OSC Coil) (＊1)L_8 (ANT Coil)	Adjust for maximum output. Adjust L_8 by moving coil bobbin along ferrite core.
(3)	〃	350 kHz	350 kHz (Fig. 21)	〃	C_{70} (OSC Trimmer) C_{51} (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
	MW ALIGNMENT					
(4)	〃	550 kHz	550 kHz (Fig. 22)	〃	L_{10} (OSC Coil) (＊1)L_7 (ANT Coil)	Adjust for maximum output. Adjust L_7 by moving coil bobbin along ferrite core.
(5)	〃	1500 kHz	1500 kHz (Fig. 23)	〃	C_{74} (OSC Trimmer) C_{109} (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
	(＊1) Cement antenna bobbin with wax after completing alignment.					
	SW ALIGNMENT					
(6)	Connect to point TP1 through 10PF capacitor. Common to point E.	5.9 MHz	5.9 MHz (Fig. 24)	〃	L_{11} (OSC Coil) L_8 (ANT Coil)	Adjust for maximum output.
(7)	〃	18 MHz	18 MHz (Fig. 25)	〃	C_{75} (OSC Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).
	FM-IF ALIGNMENT					
(8)	High side thru. 0.001μF to point TP2. Common to chassis. Negative side to point E.	10.7 MHz (400 kHz SWP.)	Point of non-interference. (on/about 90 MHz).	Connect vert. amp. of scope to point TP5. Negative side to point E.	T_1 (FM 1st IFT) T_3 (FM 2nd IFT) T_5 (FM 3rd IFT) (Primary)	Adjust for maximum amplitude and proper linearity between ±100 kHz markers. (Refer to fig.17.)
(9)	〃	〃	〃	〃	T_6 (FM 3rd IFT) (Secondary)	Adjust T_6 so that 10.7 MHz marker appears at the center. (Refer to fig.18.)
	FM-RF ALIGNMENT					
(10)	Connect to point TP1 through FM dummy antenna. Negative side point to E. (Refer to fig.19).	87.2 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L_5 (FM OSC Coil)	(＊2)Adjust for maximum output.
(11)	〃	90 MHz	Tune to signal.	〃	L_3 (FM Tuning Coil)	(＊2)Adjust for maximum output.
(12)	〃	106 MHz	106 MHz (Fig. 26)	〃	C_{17} (FM OSC Trimmer) C_8 (FM Tuning Trimmer)	(＊2)Adjust for maximum output. Repeat steps (10)～(12).
	(＊2) Three output responses will be present; proper tuning is the center frequency.					

■ ALIGNMENT POINTS

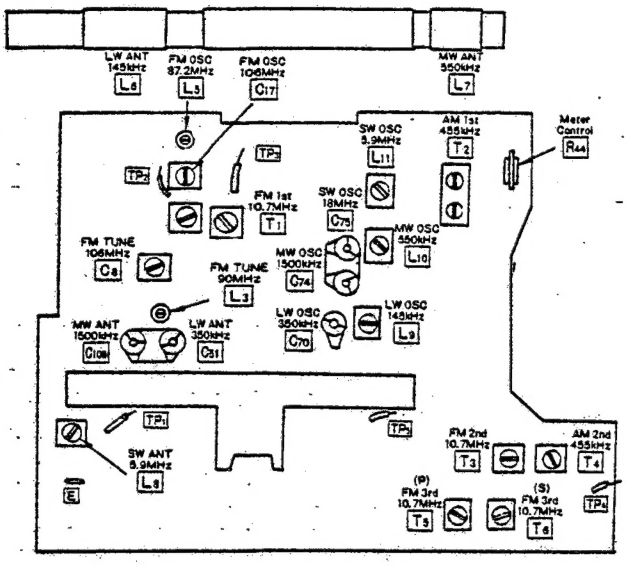


Fig. 16

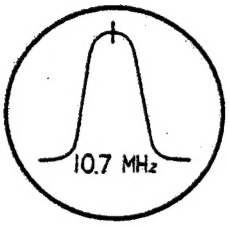


Fig. 17

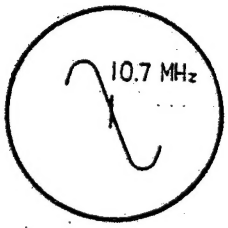


Fig. 18

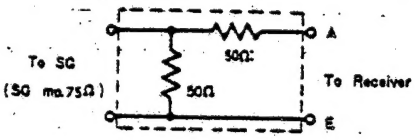
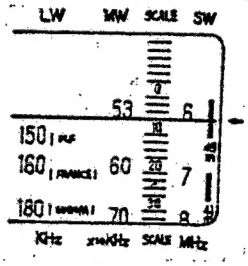


Fig. 19 FM Dummy Antenna



145 kHz (LW) 350 kHz

Fig. 20

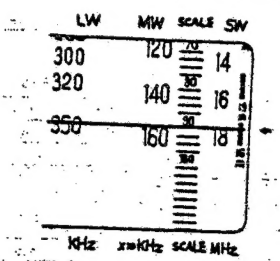
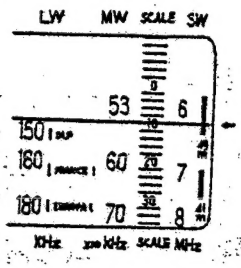


Fig. 21



550 kHz (MW) 1500 kHz

Fig. 22

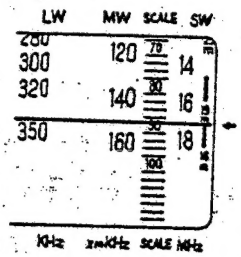
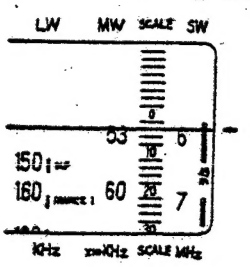


Fig. 23



5.9 MHz (SW) 18 MHz

Fig. 24

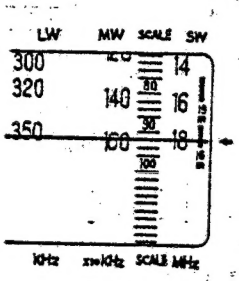
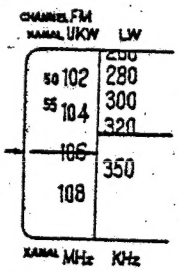


Fig. 25



(FM) 106 MHz

Fig. 26

■ CHASSIS PARTS LOCATIONS

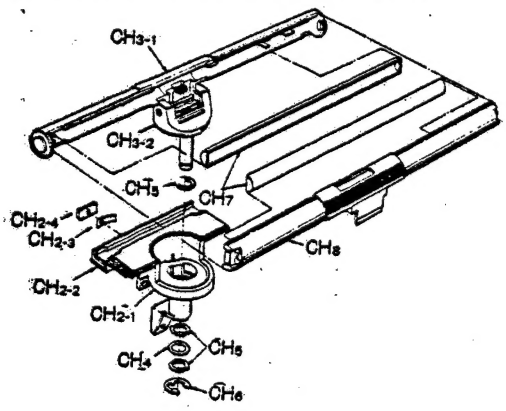


Fig. 27

■ ACCESSORIES AND PACKING MATERIALS

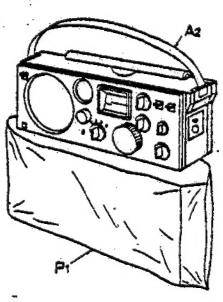


Fig. 28

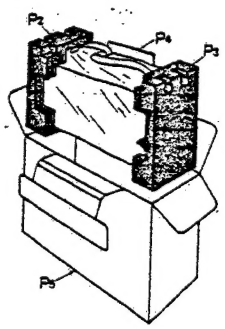


Fig. 29

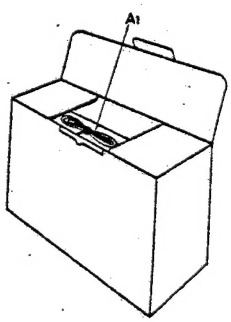


Fig. 30

■REPLACEMENT PARTS LIST····· Model RF-1130LB

Notes: 1.Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2.X–Z rank: X rank parts will cover 80% of repair needs.
X+Y rank parts will cover 95% of repair needs.
Z rank parts are less necessary.
3. ▬▬ Indicates that only parts specified by the manufacturer be used for replacement in critical circuit.

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
INTEGRATED CIRCUIT, TRANSISTORS AND DIODES					
IC	AN210	IC(Si), FM-AM IF Amplifier	1		X
TR1,6	2SK49	Transistor(Si), FM RF Amplifier, AM RF Amplifier	2		X
TR2	2SC1359	Transistor(Si), FM Oscillator	1		X
TR3,4,7,8	2SC1675	Transistor(Si), FM-AM Mixer, FM 1st IF Amplifier, AM Oscillator	4		X
TR5	2SC829	Transistor(Si), FM 2nd IF Amplifier	1		X
TR9	2SC828	Transistor(Si), Meter Amplifier	1		X
TR10	2SC1327	Transistor(Si), PRE Amplifier	1		X
TR11,13	2SC945	Transistor(Si), 1st AF Amplifier, Ripple Filter	2		X
TR12	2SB173	Transistor(Ge), 2nd AF Amplifier	1		X
TR14,15	2SC1568	Transistor(Si), Power Amplifier	2		X
D1	1S2687AA	Diode(Si), FM AFC	1		X
D2,6,7	OA90	Diode(Ge), AM D.AGC, AM Detector & AGC, FM Rectifier	3		X
D3,4,11	RVDVD1251L	Diode(Si), Power Operation Compensator, Operation Compensator	3		X
D5,14	MA150	Diode(Si), Switching	2		X
D8,9	2-OA90	Diode(Ge), FM Detector	1Pair		X
D10	RVDVD1150L	Diode(Si), Power Operation Compensator	1		X
D12,13	RVDSM102LF	Diode(Si), AC Rectifier	2		X
CERAMIC FILTER, COILS AND TRANSFORMERS					
CF1,2	RVFCF10M12FR	Ceramic Filter, FM	2		X
L1	RLQY30S1-O	Trap Coil	1		Y
L2	RLA4Y6-O	Coil, FM Antenna	1		X
L3	RLD4N30-O	Coil, FM Detector	1		X
L4	RLI4M103	Coil, FM IF Trap	1		X
L5	RLO4N22	Coil, FM Oscillator	1		X
L6,7	RLF6G23-O	Coil, LW-MW Ferrite Antenna	1		OX
L8	RLA3M10-K	Coil, SW Antenna	1		OX
L9	RLO1M1	Coil, LW Oscillator	1		OX
L10	RLO2M6	Coil, MW Oscillator	1		OX
L11	RLO3M30-K	Coil, SW Oscillator	1		OX
L12,13,15	RLQY11G4-O	Coil, Choke	3		Y
L14	RLQY15S3-O	Coil, Choke	1		Y
T1	RLI4M301	IFT, FM	1		X

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
T2	RLI7W112-T	IFT, AM	1		X
T3	RLI4M302	IFT, FM	1		X
T4	RLI2M402	IFT, AM	1		X
T5	RLI4M501	IFT, FM	1		X
T6	RLI4M502	IFT, FM	1		X
T7	RLT3F41	Input Transformer, Imp. P–700Ω:S–1KΩ	1		X
T8	RLT2H25-V	Output Transformer, Imp. P–75Ω:S–8Ω	1		X
T9	RLT5J188-W	Power Transformer	1		OX▬▬
VARIABLE RESISTORS					
R66	EVHOXAF25D54	Variable Resistor, 50KΩ(D), Volume Control	1		OX
R62,65	EVHOXAF25B54	Variable Resistor, 50KΩ(B), Bass & Treble Control	2		OX
R44	EVLT4AA00B13	Semi-Fixed Variable Resistor, 1KΩ(B), Meter Control	1		X
VARIABLE CAPACITORS					
C7,16,57,78	RCVOY41C153	Tuning Capacitor	1		X
C70	RCV1T-16M	Trimmer Capacitor	1		X
C51,74,75, 109	RCV2T-16M	Trimmer Capacitor	2		X
C8,17	RCVCTY12B218	Trimmer Capacitor	2		X
C79	ECV-1YW02D73A	Fine Tuning Capacitor	1		X
COMPONENT COMBINATIONS					
Z1	RXABPF10801H	Comonent Combination, Coil & Capacitor	1		Y
Z2	EXAF203Z471R	Component Combination, 0.01μF×2, 470Ω	1		Y
Z3	EXA5DL04CC	Component Combination,,330PF×3, 4.7KΩ×2	1		Y
Z4	RXAF103P22HD	Component Combination, 0.01μF×2	1		Y
SPEAKER					
SP	EAS12P78SB	Speaker, 12cm(5") PM Dynamic Speaker, Imp.8Ω	1		OX
SWITCHES					
S1-1~S1-10	RSR116ZK-P	Switch, Band	1		OX
S2-1,S2-2	RST59X-G	Switch, FM AFC, LW/MW SENS	1		X
S4	RST59V-G	Switch, Power	1		OX
S5	RSE50Z-T	Switch, Timer	1		X
S7	RSS2B02Z-H	Switch, Radio-Phono	1		OX
S8	RSR12A	Switch, Voltage Selector	1		X

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
RESISTORS					
R7,14,18,47, 56	ERD25TJ102	1KΩ, ⅛Watt, ±5%, Carbon	5		Z
R2,46,90	ERD25TJ824	820KΩ, ⅛Watt, ±5%, Carbon	3		Z
R55,95	ERD25TJ150	15Ω, ⅛Watt, ±5%, Carbon	2		Z
R50,96	ERD25TJ101	100Ω, ⅛Watt, ±5%, Carbon	2		Z
R67	ERD25TJ220	22Ω, ⅛Watt, ±5%, Carbon	1		Z
R74	ERD25TJ151	150Ω, ⅛Watt, ±5%, Carbon	1		Z
R21	ERD25TJ221	220Ω, ⅛Watt, ±5%, Carbon	1		Z
R10,12,49	ERD25TJ331	330Ω, ⅛Watt, ±5%, Carbon	3		Z
R75	ERD25TJ471	470Ω, ⅛Watt, ±5%, Carbon	1		Z
R48,81	ERD25TJ561	560Ω, ⅛Watt, ±5%, Carbon	2		Z
R15	ERD25TJ222	2.2KΩ, ⅛Watt, ±5%, Carbon	1		Z
R72	ERD25TJ272	2.7KΩ, ⅛Watt, ±5%, Carbon	1		Z
R94	ERD25TJ104	100KΩ, ⅛Watt, ±5%, Carbon	1		Z
R78,82,92	ERD25TJ154	150KΩ, ⅛Watt, ±5%, Carbon	3		Z
R91	ERD25TJ334	330KΩ, ⅛Watt, ±5%, Carbon	1		Z
R58,68	ERD25TJ474	470KΩ, ⅛Watt, ±5%, Carbon	2		Z
R98,102	ERD25TJ100	10Ω, ⅛Watt, ±5%, Carbon	2		Z
R70	ERD25TJ330	33Ω, ⅛Watt, ±5%, Carbon	1		Z
R101	ERD25TJ153	15KΩ, ⅛Watt, ±5%, Carbon	1		Z
R76	ERX12ANJR22	0.22Ω, ½Watt, ±5%, Metal Oxide	1		Z
R51	ERD18VJ155	1.5MΩ, ⅙Watt, ±5%, Carbon	1		Z
CAPACITORS					
C55,118	ECCD1H010C	1PF, 50WV, ±0.25PF, Ceramic	2		Z
C15	ECCD1H1R5C	1.5PF, 50WV, ±0.25PF, Ceramic	1		Z
C43	ECCD1H2R5C	2.5PF, 50WV, ±0.25PF, Ceramic	1		Z
C11	ECCD1H040C	4PF, 50WV, ±0.25PF, Ceramic	1		Z
C71	ECCD1H050CC	5PF, 50WV, ±0.25PF, Ceramic	1		Z
C107,111	ECCD1H070DC	7PF, 50WV, ±0.5PF, Ceramic	2		Z
C1,3,12	ECCD1H100KC	10PF, 50WV, ±10%, Ceramic	3		Z
C21,114	ECCD1H120KC	12PF, 50WV, ±10%, Ceramic	2		Z
C9	ECCD1H150KC	15PF, 50WV, ±10%, Ceramic	1		Z
C10	ECCD1H470KC	47PF, 50WV, ±10%, Ceramic	1		Z
C115	ECCD1H560KC	56PF, 50WV, ±10%, Ceramic	1		Z
C18	ECCD1H120KU	12PF, 50WV, ±10%, Ceramic	1		Z
C29	ECCD1H101K	100PF, 50WV, ±10%, Ceramic	1		Z
C41,49,112	ECCD1H181K	180PF, 50WV, ±10%, Ceramic	3		Z
C58,92,99	ECCD331K	330PF, 50WV, ±10%, Ceramic	3		Z
C2,5,13,34, 100,106	ECKE1H102PF	0.001μF, 50WV, ±10%, Ceramic	6		Z
C19,24,25,26, 28,37,48,59, 62,65,77	ECKE1H103PF	0.01μF, 50WV, ±10%, Ceramic	11		Z
C32,60	ECKE1H223PF	0.022μF, 50WV, ±10%, Ceramic	2		Z
C27	ECKE1H681MD	680PF, 50WV, ±20%, Ceramic	1		Z
C6,67,101	ECKE1H102MD	0.001μF, 50WV, ±20%, Ceramic	3		Z
C63,123	ECKE1H222MD	0.0022μF, 50WV, ±20%, Ceramic	2		Z
C20,68,73,82,119	ECKE1H103MD	0.01μF, 50WV, ±20%, Ceramic	5		Z
C33,36,39,40,46,61, 80,86,95,96,103	ECKE1H223MD	0.022μF, 50WV, ±20%, Ceramic	11		Z

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
C98,120	ECKE1H682MD	0.0068μF, 50WV, ±20%, Ceramic	1		Z
C83,89,113	ECQG05333MZ	0.033μF, 50WV, ±20%, Polyester	3		Z
C87	ECQG05683MZ	0.068μF, 50WV, ±20%, Polyester	1		Z
C69	ECMS05181J-H	180PF, 50WV, ±5%, Mica	1		Z
C72	ECQS1361JZ	360PF, 125WV, ±5%, Styrol	1		Z
C64	ECQS1152KZ	1500PF, 125WV, ±10%, Styrol	1		Z
C108	ECQS05392KZ	3900PF, 50WV, ±10%, Styrol	1		Z
C121	ECQG05152MZ	0.0015μF, 50WV, ±20%, Polyester	1		Z
C30,44,125	ECQG05473MZ	0.047μF, 50WV, ±20%, Polyester	3		Z
C31,126	ECEA16V47	47μF, 16WV, Electrolytic	2		Y
C35,50,93	ECEA10V100	100μF, 10WV, Electrolytic	3		Y
C85,94	ECEA6V220	220μF, 6.3WV, Electrolytic	2		Y
C97,124	ECEA10V1000	1000μF, 10WV, Electrolytic	2		Y
C38,42	ECEA16V10	10μF, 16WV, Electrolytic	2		Y
C47	ECEA35V4R7	4.7μF, 35WV, Electrolytic	1		Y
C81,84,91	ECEA50V1	1μF, 50WV, Electrolytic	3		Y
C22,116,117	ECKE1H333PF	0.033μF, 50WV, ±10%, Ceramic	3		Z
C45	ECKE1H153MD	0.015μF, 50WV, ±20%, Ceramic	1		Z
C88,122	ECKE1H472MD	0.0047μF, 50WV, ±20%, Ceramic	2		Z
C90	ECEA50ZR1E	0.1μF, 50WV, Electrolytic	1		Y
CABINET					
CA1	RYMF1130LBXG	Cabinet Assembly	1		OX
CA1-1	Not Available, Order RYMF1130LBXG	Cabinet Body Only	(1)		
CA1-2		Transparent Cover	(1)		
CA1-3		Indicating Plate, GX500, National Panasonic & etc. Mark	(1)		
CA1-4		Metal Grille	(1)		
CA1-5		Indicating Plate, RADIO, PHONO & etc. Mark	(1)		
CA1-6	RMA5022B	Bracket (Plastic), Telescopic Ant.	1		Z
CA2	RYFF1130LBXG	Cabinet Back Cover Assembly	1		OX
CA2	RYFF1130LBXI	Cabinet Back Cover Assembly (Only for Italy)	1		OX
CA2-1	Not Available, Order RYFF1130LBXG or RYFF1130LBXI	Cabinet Back Cover	(1)		
		Indicating Plate, VOLTAGE SELECTOR & AC IN Mark	(1)		
CA2-2	RGX639Z	Ornament	1		Z
CA2-3	RGT487Z	Name Plate	1		OZ
CA2-3	RGT487Y	Name Plate (Only for Italy)	1		OZ
CA2-4	RJC205B	Terminal, Battery ⊕ Side	2		X
CA2-5	RJC603Z	Terminal (Spring), Battery ⊖ Side	2		X
CA2-6	RJT398A	Connecting Pipe, Terminal	2		Z
CA2-7	RHG307A	Rubber Cushion, Gyro Ant.	2		Z
CA3	XEARR252EASY	Telescopic Amtenna	1		X
CA4	RJF1044Z	Terminal Board, EXT ANT.	1		Y
CA5	RJT732-2	Terminal (Spring), Dial Light Switch	1		Y
CA6	RJT482Z	Terminal, Dial Light Switch	1		Y
CA7	RMA139Z	Bracket (Metal), Telescopic Ant.	1		OY
CA8	RKK9001Z	Battery Cover, Battery Compartment	1		X

		Button, Dial Light Switch	1		OX
CA10	RBN336Z	Knob, Tuning	1		OX
CA11	RBN352Z	Knob, Fine Tuning	1		OX
CA12	RBS94Z	Knob, Volume, Bass & Treble	3		OX
CA13	RBS95ZK	Knob, Band	1		OX
CA14	RBS96Z	Knob, ON/OFF Timer	1		OX
CA15	SHRA403	Latch, EXT Ant. Terminal	2		OZ
CA16	XTN23+6B	Screw, Dial Light Switch Terminal	2		Z
CA17	XTN3+8B	Screw, Bracket(Telescopic Ant.) M'tg	1		Z
CA18	XYN3+F6S	Screw, Telescopic Ant. M'tg	1		Z
CA19	XTB3+45BFN	Screw, Cabinet Back Cover M'tg	5		Z

CHASSIS

CH1	RYDF1130LBXG	Dial Assembly	1		OX
CH1-1	Not Available, Order RYDF1130LBXG	Base, Dial	(1)		
CH1-2		Roller, Dial	(2)		
CH1-3		Shaft, Gear(Low Frequency Side)	(1)		
CH1-4		Gear, Roller(High Frequency Side)	(1)		
CH1-5		Gear(Large), Dial	(1)		
		Circrip, Gear M'tg	(1)		
CH1-6		Dial	(1)		
CH1-7		Gear, Low Frequency Side	(1)		
CH1-8		Spring, Gear(Low Frequency Side)	(1)		
CH1-9	RDD200Z	Drum(Small), Dial	1		Y
CH1-10	RDR21-1	Pulley, Dial	1		Y
CH1-11	RDR20-3	Pulley, Dial	1		Y
CH1-12	RDY31A	Shaft, Pulley	2		Z
CH1-13	RDT9079Z	Shaft, Tuning	1		OY
	XUCR5FY	Circrip, Tuning Shaft	1		Z
CH1-14(Fig.12)	XTW3+10E	Screw, Drum(RDD200Z) M'tg	1		Z
	XWC3B	Washer, Drum(RDD200Z) M'tg	1		Z
CH1-15	RDD304Z	Drum(Large), Dial	1		OY
CH1-16	RDS40604A	Spring, Drum	2		OY
CH1-17	RDZ05A	Cord(500m), Dial	1Roll		Y
CH2	RYE1F1130N	Gyro Antenna Base Assembly	1		OX
CH2-1	Not Available, Order RYE1F1130N	Base, Gyro Antenna	(1)		
CH2-2		Indicating Plate	(1)		
CH2-3	RHR758Z	Stopper, Gyro Antenna	1		OZ
CH2-4	RNE914	Bracket, Stopper	1		Z
CH3	RYE2F1130N	Gyro Antenna Case Assembly	1		OX
CH3-1	Not Available, Order RYE2F1130N	Case, Gyro Antenna	(1)		
CH3-2		Shaft, Gyro Antenna Case	(1)		
CH4	RUS238Z	Washer, Gyro Antenna Case M'tg	1		OZ
CH5	RHE6021Z	Washer, Gyro Antenna Case M'tg	3		OZ
CH6	XUC9FZ	Circrip, Gyro Antenna Case M'tg	1		OZ
CH7	RHR986Z	Cushion, Gyro Antenna	2		Z
CH8	RKE177Z	Cover, Gyro Antenna	1		OY
	XAMR46T200	Pilot Lamp, Dial Light, 6V 40mA	1		X
	RSM2605B-K	Meter, Tuning & Battery	1		X
	RJJ10C	Jack, Earphone or EXT. Speaker	1		Y

	RJJ30Z-H	Jack, EXT. Power Source	1		Y
	RJE10Z	Cover, EXT. Power Source Jack	1		Y
	RJS31-1	Jack, Phono & Rec Out	1		OZ
	RMW125ZS	Bracket, Radio Phono Selector	2		OZ
CH9	RMY90Z	Heat Sink, Transistor	1		OY
CH10	RGK597ZK	Indicating Plate, Band Selector	2		OZ
	RHG632Z	Rubber Cushion, Timer	2		Z
	XRY35X7	Spacer, Timer	2		Z
	XTN3+12B	Screw, Timer M'tg	2		Z
	XTW3+6L	Screw, Transformer M'tg	2		Z
CH11(Fig.6)	XNS8	Nut, Fine Tuning & Band Selector M'tg	2		Z
CH12(Fig.3)	XNS8R	Nut(Red), Bass, Treble & Volume Control M'tg	3		Z
	XWV8	Washer, Fine Tuning, Band Selector & etc. M'tg	5		Z
CH13(Fig.2)	XTN3+10BR	Screw(Red), Chassis M'tg	3		Z
CH14(Fig.2)	XTN3+25BR	Screw(Red), Chassis M'tg	2		Z
CH15(Fig.2)	XTW3+12ER	Screw(Red), Chassis M'tg	1		Z
CH16(Fig.2)	XTW3+10ER	Screw(Red), Chassis M'tg	1		Z
CH17(Fig.5)	XTN3+8B	Screw, Gyro Ant. & Dial Base M'tg	3		Z
CH18(Fig.5)	XTW3+8E	Screw, Gyro Ant. & Dial Base M'tg	1		Z
CH19(Fig.4)	XYN26+C5	Screw, Dial Drum M'tg	1		Z

ACCESSORIES

	XEH1A1-P	Earphone, Imp. 8Ω	1		Y
A1	RJA20Z-K	Power Cord, AC	1		Y
A2	RQC9011Z	Carring Belt	1		OY

PACKING MATERIALS

P1	RPP192Z	Polyethylene Cover	1		Z
	RPN9175Z	Pad Complete	1		Z
P2	Not Available, Order RPN9175Z	Pad, Left Side	(1)		
P3		Pad, Right Side	(1)		
P4	RQX5943Z	Instruction Book	1		OY
P5	RPK401Z	Gift Box	1		OY
P5	RPK401Y	Gift Box,(Only for Italy)	1		OY

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Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CA9	RBC89Y	Button, Dial Light Switch	1	OX
CA10	RBN336Z	Knob, Tuning	1	OX
CA11	RBN352Z	Knob, Fine Tuning	1	OX
CA12	RBS94Z	Knob, Volume, Bass & Treble	3	OX
CA13	RBS95ZK	Knob, Band	1	OX
CA14	RBS96Z	Knob, ON/OFF Timer	1	OX
CA15	SHRA403	Latch, EXT Ant. Terminal	2	OZ
CA16	XTN23+6B	Screw, Dial Light Switch Terminal	2	Z
CA17	XTN3+8B	Screw, Bracket(Telescopic Ant.) M'tg	1	Z
CA18	XYN3+F6S	Screw, Telescopic Ant. M'tg	1	Z
CA19	XTB3+45BFN	Screw, Cabinet Back Cover M'tg	5	Z
		CHASSIS		
CH1	RYDF1130LBXG	Dial Assembly	1	OX
CH1-1	Not Available, Order RYDF1130LBXG	Base, Dial	(1)	
CH1-2		Roller, Dial	(2)	
CH1-3		Shaft, Gear(Low Frequency Side)	(1)	
CH1-4		Gear, Roller(High Frequency Side)	(1)	
CH1-5		Gear(Large), Dial	(1)	
		Circrip, Gear M'tg	(1)	
CH1-6		Dial	(1)	
CH1-7		Gear, Low Frequency Side	(1)	
CH1-8		Spring, Gear(Low Frequency Side)	(1)	
CH1-9	RDD200Z	Drum(Small), Dial	1	Y
CH1-10	RDR21-1	Pulley, Dial	1	Y
CH1-11	RDR20-3	Pulley, Dial	1	Y
CH1-12	RDY31A	Shaft, Pulley	2	Z
CH1-13	RDT9079Z	Shaft, Tuning	1	OY
	XUCR5FY	Circrip, Tuning Shaft	1	Z
CH1-14(Fig.12)	XTW3+10E	Screw, Drum(RDD200Z) M'tg	1	Z
	XWC3B	Washer, Drum(RDD200Z) M'tg	1	Z
CH1-15	RDD304Z	Drum(Large), Dial	1	OY
CH1-16	RDS40604A	Spring, Drum	2	OY
CH1-17	RDZ05A	Cord(500m), Dial	1Roll	Y
CH2	RYE1F1130N	Gyro Antenna Base Assembly	1	OX
CH2-1	Not Available, Order RYE1F1130N	Base, Gyro Antenna	(1)	
CH2-2		Indicating Plate	(1)	
CH2-3	RHR758Z	Stopper, Gyro Antenna	1	OZ
CH2-4	RNE914	Bracket, Stopper	1	Z
CH3	RYE2F1130N	Gyro Antenna Case Assembly	1	OX
CH3-1	Not Available, Order RYE2F1130N	Case, Gyro Antenna	(1)	
CH3-2		Shaft, Gyro Antenna Case	(1)	
CH4	RUS238Z	Washer, Gyro Antenna Case M'tg	1	OZ
CH5	RHE6021Z	Washer, Gyro Antenna Case M'tg	3	OZ
CH6	XUC9FZ	Circrip, Gyro Antenna Case M'tg	1	OZ
CH7	RHR986Z	Cushion, Gyro Antenna	2	Z
CH8	RKE177Z	Cover, Gyro Antenna	1	OY
	XAMR46T200	Pilot Lamp, Dial Light, 6V 40mA	1	X
	RSM2605B-K	Meter, Tuning & Battery	1	X
	RJJ100	Jack, Earphone or EXT. Speaker	1	Y

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
	RJJ30Z-H	Jack, EXT. Power Source	1	Y
	RJE10Z	Cover, EXT. Power Source Jack	1	Y
	RJS31-1	Jack, Phono & Rec Out	1	Y
	RMW125ZS	Bracket, Radio Phono Selector	1	OZ
CH9	RMY90Z	Heat Sink, Transistor	2	OZ
CH10	RGK597ZK	Indicating Plate, Band Selector	1	OY
	RHG532Z	Rubber Cushion, Timer	2	OZ
	XRY35X7	Spacer, Timer	2	Z
	XTN3+12B	Screw, Timer M'tg	2	Z
	XTW3+6L	Screw, Transformer M'tg	2	Z
CH11(Fig.6)	XNS8	Nut, Fine Tuning & Band Selector M'tg	2	Z
CH12(Fig.3)	XNS8R	Nut(Red), Bass, Treble & Volume Control M'tg	3	Z
	XWV8	Washer, Fine Tuning, Band Selector & etc. M'tg	5	Z
CH13(Fig.2)	XTN3+10BR	Screw(Red), Chassis M'tg	3	Z
CH14(Fig.2)	XTN3+25BR	Screw(Red), Chassis M'tg	2	Z
CH15(Fig.2)	XTW3+12ER	Screw(Red), Chassis M'tg	1	Z
CH16(Fig.2)	XTW3+10ER	Screw(Red), Chassis M'tg	1	Z
CH17(Fig.5)	XTN3+8B	Screw, Gyro Ant. & Dial Base M'tg	3	Z
CH18(Fig.5)	XTW3+8B	Screw, Gyro Ant. & Dial Base M'tg	1	Z
CH19(Fig.4)	XYN26+C5	Screw, Dial Drum M'tg	1	Z
		ACCESSORIES		
	XEH1A1-P	Earphone, Imp. 8Ω	1	Y
A1	RJA20Z-K	Power Cord, AC	1	Y
A2	RQC9011Z	Carring Belt	1	OY
		PACKING MATERIALS		
P1	RPP192Z	Polyethylene Cover	1	Z
	RPN9175Z	Pad Complete	1	Z
P2	Not Available, Order RPN9175Z	Pad, Left Side	(1)	
P3		Pad, Right Side	(1)	
P4	RQX5943Z	Instruction Book	1	OY
P5	RPK401Z	Gift Box	1	OY
P5	RPK401Y	Gift Box,(Only for Italy)	1	OY

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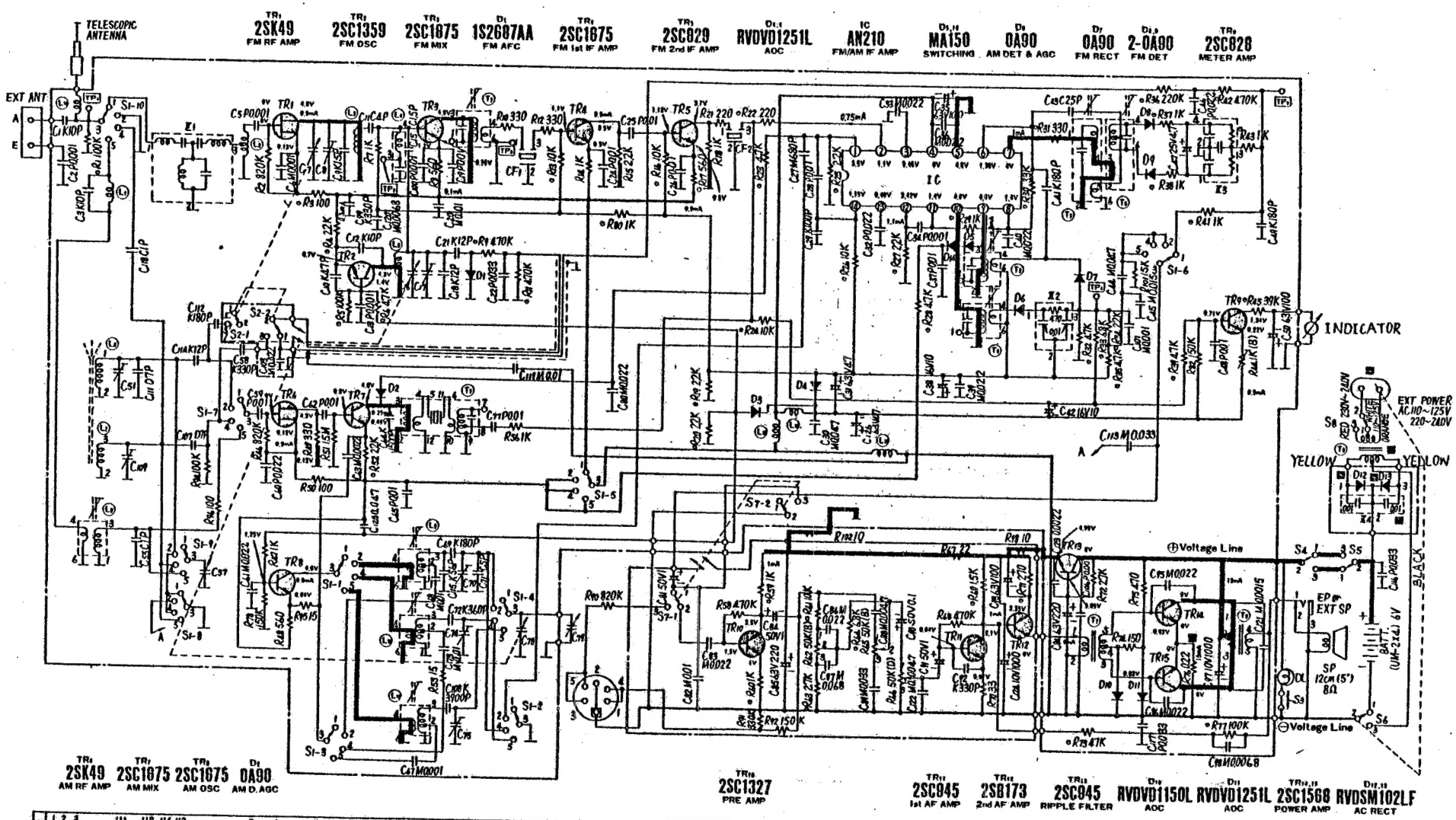
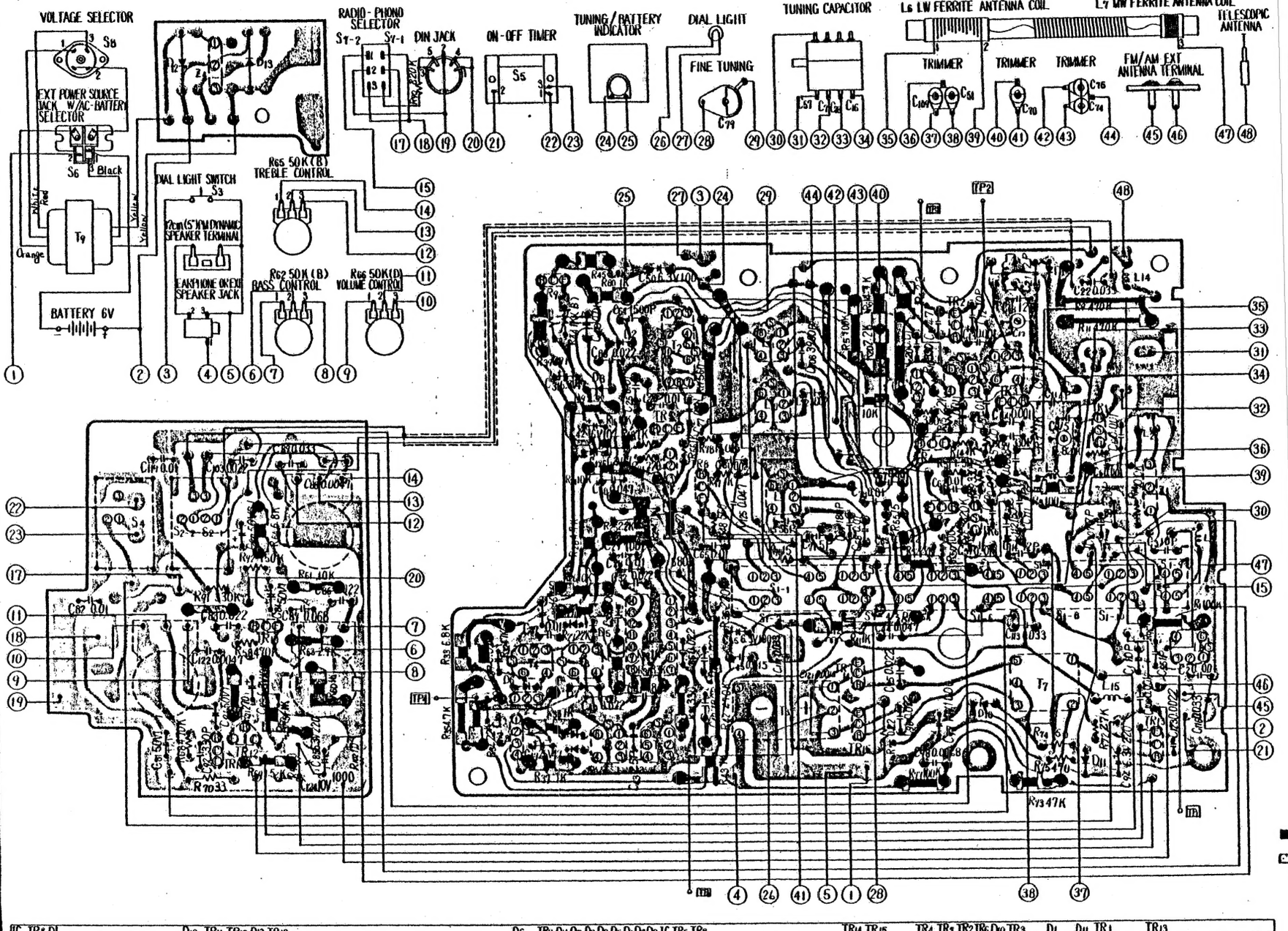
Schematic Diagram – Model RF-1130LB



Notes:

1. S_{1-1}~S_{1-10}: Band selector in "FM" position.
2. S_{2-1}: FM AFC MW DX-LOCAL switch in "ON" "DX" position.
3. S_{2-2}: LW DX-LOCAL switch in "DX" position.
4. S_3: Dial light switch in "OFF" position.
5. S_4: Power switch in "OFF" position.
6. S_5: Timer switch in "OFF" position.
7. S_6: AC-Battery selector in "Battery" position.
8. S_7: Radio-Phono selector in "RADIO" position.
9. S_8: Voltage selector in "110~125V" position.
10. DC voltage measurements are taken with circuit tester 10kΩ/V from negative terminal of battery.
    $TR_{1\sim6}$.....FM position. $TR_{6,\ 7,\ 8}$.....AM position.
11. Battery current: No signal 45mA
    Maximum output 700mA
12. Printed resistors are shown by 0 mark.
13. ▣ Indicates that only parts specified by the manufacturer be used for replacement in critical circuits.

Circuit Board Wiring View - Model RF-1130LB



	FM
D	4.6V
G	0V
S	0.12V
Id	0.8mA

TR1

	FM
D	4.3V
B	1.4V
E	0.7V
Id	0.3mA

TR2

	FM
D	4.6V
B	1.2V
E	0.60V
Id	0.1mA

TR3

	FM
D	3.8V
G	1.1V
S	0.8V
Id	0.8mA

TR4

	FM
D	3.7V
B	1.13V
E	0.8V
Id	0.9mA

TR5

	AM
D	4.3V
G	0V
S	0.12V
Id	0.9mA

TR6

	AM
D	4.6V
G	0.8V
S	0.44V
Id	0.28mA

TR7

	AM
D	4.8V
B	1.25V
E	0.84V
Id	0.9mA

TR8

	AM
D	1.34V
B	0.71V
E	0.22V
Id	0.0mA

TR9

D	3.8V
B	1.6V
E	1V
Id	1mA

TR10

D	3.1V
B	0.84V
E	0.07V
Id	1mA

TR11

D	0V
B	3.1V
E	3.38V
Id	0mA

TR12

D	6V
B	5.66V
E	4.98V

TR13

D	6V
B	0.62V
E	0V
Id	18mA

TR14,15

IC

1	3.8V	8	1.4V
2	1.1V	9	4.8V
3	0.46V	10	4.8V
4	0V	11	1.4V
5	4.8V	12	3.62V
6	1.38V	13	0.48V
7	4V	14	1.16V

IC, TR & D	D12 TR11 TR12 D13 TR10	D6 TR9 D14 D7 D4 D8 D5 D1 D3 D2 IC TR5 TR8	TR14 TR15	TR4 TR7 TR2 TR6 D10 TR3	D1	D11 TR1	TR13
L & T	T9	T4 T3 T6 T5 T2	L11 L10 L9 T8 L12	L6 T1	L5 L4 T7 L3	L15 L14	L2 L7 L8 L1